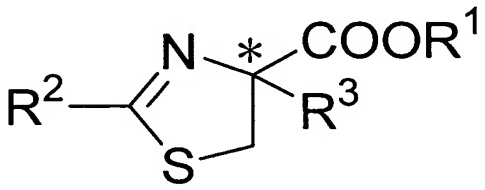
Preliminary Amendment
National Stage Entry of PCT/JP2003/012565

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

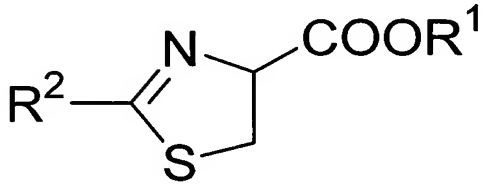
LISTING OF CLAIMS:

1. (original): A process for producing an optically active thiazoline compound represented by general formula (1):



(1)

(where * represents an asymmetric carbon atom; R^1 represents an optionally substituted linear, branched, or cyclic C_1-C_{10} alkyl group or an optionally substituted linear, branched, or cyclic C_1-C_{10} alkylsilyl group; R^2 represents an optionally substituted C_6-C_{30} aryl group or an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group; and R^3 represents an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkenyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkynyl group, an optionally substituted linear, branched, or cyclic C_3-C_{20} alkoxycarbonylalkyl group, an optionally substituted C_7-C_{30} aralkyl group, or an optionally substituted C_4-C_{30} heteroaralkyl group), the process comprising a step of allowing a thiazoline compound represented by general formula (2):



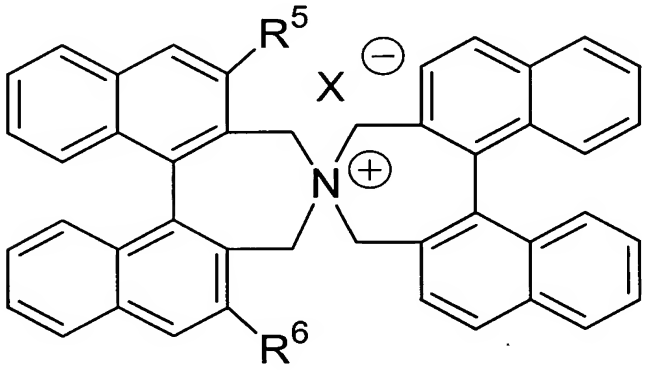
(2)

(where R^1 and R^2 are the same as above) to react with a compound represented by general formula (3) in the presence of a base and an optically active quaternary ammonium salt functioning as a catalyst:

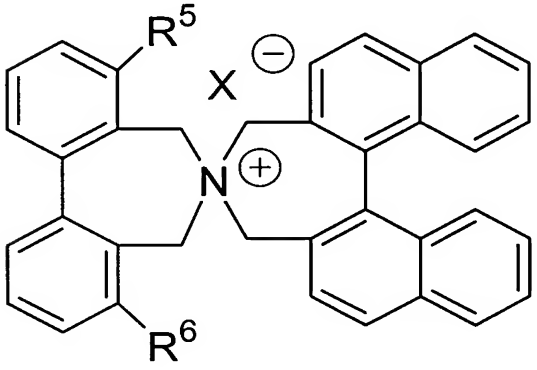
$$R^3L \quad (3)$$

(R^3 is the same as above; and L represents a leaving group).

2. (original): The process according to Claim 1, wherein the optically active quaternary ammonium salt is an optically active axially asymmetric quaternary ammonium salt represented by general formula (4) or general formula (5):



(4)



(5)

(where R^5 and R^6 each represent a hydrogen atom, an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkenyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkynyl group, an optionally substituted C_6-C_{30} aryl group, an optionally substituted C_3-C_{30} heteroaryl group, an optionally substituted C_7-C_{30} aralkyl group, an optionally substituted C_4-C_{30} heteroaralkyl group, an optionally substituted linear, branched, or cyclic C_1-C_{15} alkanoyl group, or a C_7-C_{30} aroyl group having an optionally substituted aromatic ring, and R^5 and R^6 may be the same or different; and X represents a hetero atom or atomic group having ability to function as a counter anion to the ammonium cation.)

3. (original): The process according to Claim 2, further comprising steps of, after the reaction, isolating and recovering the optically active axially asymmetric quaternary ammonium salt represented by formula (4) or (5) from the reaction mixture by column chromatography using a column packed with an adsorbent, and then reusing the recovered salt.

4. (currently amended): The process according to Claim 2 ~~or 3~~, wherein R^5 and R^6 in formulae (4) and (5) each represent an optionally substituted phenyl group, an optionally substituted naphthyl group, an optionally substituted anthryl group, an optionally substituted phenanthryl group, or an optionally substituted terphenyl group.

5. (currently amended): The process according to Claim 2~~any one of Claims 2 to 4~~, wherein R^5 and R^6 in formulae (4) and (5) represent the same group.

6. (currently amended): The process according to Claim 2~~any one of Claims 2 to 5~~, wherein, in formulae (4) and (5), each X represents a halogen atom.

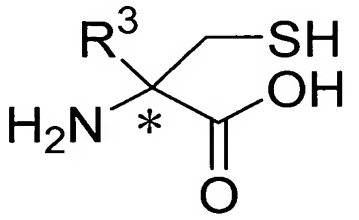
7. (currently amended): The process according to Claim 1 or 2~~any one of Claims 1 to 6~~, wherein R^1 represents a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, a sec-butyl group, or a tert-butyl group.

8. (currently amended): The process according to Claim 1 or 2~~any one of Claims 1 to 7~~, wherein R^2 represents an optionally substituted phenyl group.

9. (currently amended): The process according to Claim 1 or 2~~any one of Claims 1 to 8~~, wherein R^3 represents a methyl group, an ethyl group, an allyl group, a propargyl group, or a benzyl group.

10. (currently amended): The process according to Claim 1 or 2~~any one of Claims 1 to 9~~, wherein L in formula (3) represents a halogen atom.

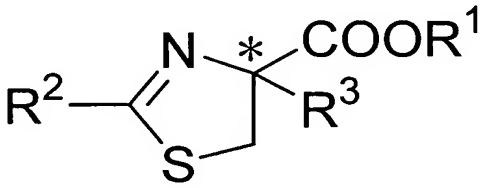
11. (currently amended): A process for producing an optically active α-substituted cysteine represented by general formula (6) or a salt thereof:



(6)

(where * represents an asymmetric carbon atom; and R^3 represents an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkenyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkynyl

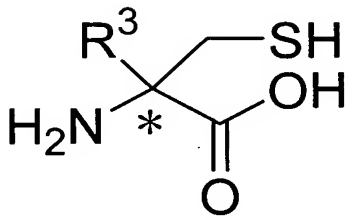
group, an optionally substituted linear, branched, or cyclic C_3-C_{20} alkoxycarbonylalkyl group, an optionally substituted C_7-C_{30} aralkyl group, or an optionally substituted C_4-C_{30} heteroaralkyl group), the process comprising a step of hydrolyzing an optically active thiazoline compound produced by the process according to Claim 1~~any one of Claims 1 to 10~~, the thiazoline compound being represented by general formula (1):



(1)

(where * and R^3 are the same as above; R^1 represents an optionally substituted linear, branched, or cyclic C_1-C_{10} alkyl group or an optionally substituted linear, branched, or cyclic C_1-C_{10} alkylsilyl group; and R^2 represents an optionally substituted C_6-C_{30} aryl group or an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group).

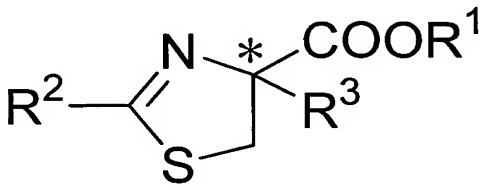
12. (original): A process for producing an optically active α-substituted cysteine represented by general formula (6) or a salt thereof:



(6)

(where * represents an asymmetric carbon atom; and R^3 represents an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group, an optionally substituted linear, branched, or

cyclic C_2-C_{20} alkenyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkynyl group, an optionally substituted linear, branched, or cyclic C_3-C_{20} alkoxycarbonylalkyl group, an optionally substituted C_7-C_{30} aralkyl group, or an optionally substituted C_4-C_{30} heteroaralkyl group), the process comprising a step of hydrolyzing an optically active thiazoline compound represented by general formula (1):

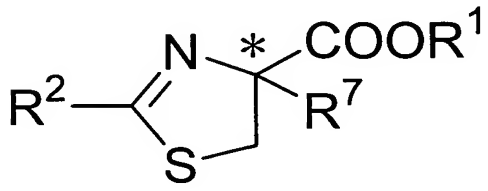


(1)

(where * and R^3 are the same as above; R^1 represents an optionally substituted linear, branched, or cyclic C_1-C_{10} alkyl group or an optionally substituted linear, branched, or cyclic C_1-C_{10} alkylsilyl group; and R^2 represents an optionally substituted C_6-C_{30} aryl group or an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group).

13. (original): The process according to Claim 11 or 12, wherein an acid is used for the hydrolysis.

14. (original): An optically active thiazoline compound represented by general formula (7):



(7)

(where * represents an asymmetric carbon atom; R^1 represents an optionally substituted linear, branched, or cyclic C_1-C_{10} alkyl group or an optionally substituted linear, branched, or cyclic C_1-C_{10} alkylsilyl group; R^2 represents an optionally substituted C_6-C_{30} aryl group or an optionally substituted linear, branched, or cyclic C_1-C_{20} alkyl group; and R^7 represents an optionally substituted linear, branched, or cyclic C_2-C_{20} alkyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkenyl group, an optionally substituted linear, branched, or cyclic C_2-C_{20} alkynyl group, an optionally substituted linear, branched, or cyclic C_3-C_{20} alkoxycarbonylalkyl group, an optionally substituted C_7-C_{30} aralkyl group, or an optionally substituted C_4-C_{30} heteroaralkyl group).

15. (original): The compound according to Claim 14, wherein R^1 represents a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, a sec-butyl group, or a tert-butyl group.

16. (currently amended): The compound according to Claim 14 ~~or 15~~, wherein R^2 represents an optionally substituted phenyl group.

17. (currently amended): The compound according to Claim 14~~, 15, or 16~~, wherein R^7 represents an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, a sec-butyl group, a tert-butyl group, a pentyl group, a hexyl group, a cyclopropylmethyl group, a cyclopentylmethyl group, a cyclohexylmethyl group, an allyl group, a 2-butenyl group, a 1-methyl-2-propenyl group, a 2-methyl-2-propenyl group, a propargyl group, a tert-butoxycarbonylmethyl group, a benzyl group, a chlorobenzyl group, a fluorobenzyl group, a bromobenzyl group, a dichlorobenzyl group, a difluorobenzyl group, a dibromobenzyl group, a methylbenzyl group, a methoxybenzyl group, a 3,4-dibutoxybenzyl group, a naphthylmethyl group, or an indolylmethyl group.